

WHAT IS CLAIMED IS:

1. A bus control device comprising an external interface connected to an external device via an external system bus, an internal unit, a memory
5 interface connected to an external local memory, and an internal bus at least connecting the external interface to the memory interface and connecting the internal unit to the memory interface,
wherein the memory interface monitors a usage pattern of the internal bus by the external interface and the internal unit, and sets a
10 priority processing interval that allows only the external interface to use the internal bus in a case where the internal unit is not using the internal bus, thereby prohibiting the internal unit from using the internal bus during the priority processing interval.
- 15 2. The bus control device according to claim 1, wherein the memory interface comprises a bus arbiter for arbitrating between a request for use of the internal bus by the external interface and by the internal unit, and a priority processing interval managing part for monitoring the usage pattern of the internal bus based on a result of an arbitration performed by the bus arbiter,
20 wherein the priority processing interval managing part notifies the bus arbiter and the external interface that only the external interface is permitted to use the internal bus, in a case where the internal unit is not using the internal bus and sets the priority processing interval, and
the bus arbiter prohibits the internal unit from using the internal bus
25 while the priority processing interval is set.
3. The bus control device according to claim 2, wherein the memory interface comprises a priority processing interval setting register for storing information specifying a length of the priority processing interval, and
30 the priority processing interval managing part sets the priority processing interval based on the information stored in the priority processing interval setting register.
4. The bus control device according to claim 2, wherein the internal unit has
35 a function of notifying the bus arbiter of an amount of data to be transferred, as well as requesting a use of the internal bus,
the bus arbiter compares a previously set amount of data with the

amount of data to be transferred, in a case of receiving a request for use of the internal bus from the internal unit and a notification of the amount of data to be transferred, during the priority processing interval, and

5 when the amount of data to be transferred is equal to or less than the previously set amount of data, the bus arbiter permits the internal unit to use the internal bus during the priority processing interval.

5. The bus control device according to claim 2, wherein the priority processing interval managing part monitors the usage pattern of the internal
10 bus by confirming the result of the arbitration performed by the bus arbiter at a previously set frequency, and
the frequency is set by the external device.

6. A bus control device comprising an external interface connected to an
15 external device via an external system bus, a plurality of internal units, a memory interface connected to an external local memory, and an internal bus connecting the external interface to the memory interface and connecting the internal units to the memory interface,

wherein a part of the plurality of internal units has a function of
20 dividing data to be transferred to the memory interface via the internal bus and transferring it, and

the memory interface prohibits the internal units other than the part of the plurality of internal units from using the internal bus and permits the external interface to use the internal bus, during a period before transfer of
25 all the divided data is completed.

7. The bus control device according to claim 6, wherein the part of the internal units has a division and transfer notifying part,

the division and transfer notifying part has a function of notifying the
30 memory interface that the divided data is being transferred, during a period before the transfer of all the divided data is completed, in a case of transferring the data after dividing it,

the memory interface has a bus arbiter for arbitrating in a request for use of the internal bus by the external interface and the internal units, and

35 the bus arbiter prohibits the other internal units from using the internal bus and permits the external interface to use the internal bus, while being notified that the divided data is being transferred.

8. The bus control device according to claim 6, wherein the part of the internal units comprises a division number setting register for storing information specifying a division number of the data, and divides the data
5 based on the stored information.

9. The bus control device according to claim 7, wherein the external interface and the other internal units have a function of requesting a use of the internal bus with respect to the bus arbiter and notifying the bus arbiter of
10 an amount of data to be transferred,

the bus arbiter compares a previously set amount of data with the amount of data to be transferred, in a case of receiving a request for use of the internal bus and a notification of the amount of data to be transferred from one or both of the external interface and the other internal units, while
15 being notified that the divided data is being transferred, thereby determining whether or not one or both of the external interface and the other internal units are intended to transfer an amount of data equal to or less than the previously set amount of data, and

the bus arbiter permits the use of the internal bus with respect to
20 those which are determined to be intended to transfer the amount of data equal to or less than the previously set amount of data, while being notified that the divided data is being transferred.

10. An information processing system comprising the bus control device of
25 any one of claims 1 to 9, a CPU connected to the external interface of the bus control device via a system bus, and a local memory connected to the memory interface of the bus control device.